



**ENGINEERING OPERATIONS COMMITTEE
MEETING MINUTES
SEPTEMBER 2, 2004 – 9:00 A.M.
AERONAUTICS COMMISSION ROOM**

<i>Present:</i>	J. Polasek J. D. Culp C. Bleech	C. Roberts J. W. Reincke T. Anderson	M. VanPortFleet T. Fudaly E. Burns
<i>Absent:</i>	L. Tibbits M. Chaput	J. Friend	B. O'Brien
<i>Guests:</i>	M. Dionise S. Beck	G. Mayes D. Weber	R. Roberts J. Staton

OLD BUSINESS

1. Approval of the Minutes of the August 5, 2004, Meeting – J. Polasek

The minutes of the August 5, 2004, meeting were approved.

NEW BUSINESS

1. Winter Operations/Corridors of Significance – T. Anderson/R. Roberts

There is a mix of direct forces and contract agencies that perform winter maintenance. Each works independently to establish their own methods, techniques and response to handle winter storm events. Motorists expect consistency in snow removal and salt application, especially on our freeways and major arterials that cover the state. Public pressure for improved service has resulted in increased annual winter maintenance costs.

At the direction of the Chief Operations Officer, a team was formed to develop a new, consistent approach to winter maintenance. A proposal for winter operations, "Maintenance Corridors of Significance," was developed. The proposed study consists of two phases: Phase I (data collection and evaluation of best practices) scheduled for the winter of 2004/05, and Phase II (execution and evaluation of recommendations from Phase I) for the winter of 2005/06, which includes application of best practices on three corridors.

The presentation by Ray Roberts was excellent. It was suggested that State Planning and Research (SPR) funds are available for significant parts of the study.

ACTION: The proposed winter maintenance study is approved. Gary Mayes will work with Jon Reincke on the SPR funding possibilities.

2. Joint Layout for PCC Pavement Intersections – J. Staton

The standard plan details for intersection joint layout are generic and provide insufficient and inaccurate guidance to the engineer regarding the proper layout of planes-of-weakness for jointed concrete pavement intersections and crossovers. Improper jointing leads to uncontrolled, random cracking.

The Materials Research Group partnered with the Design Standards Unit and the Michigan Concrete Paving Association (MCPA) to develop revisions to the existing plan that will minimize random cracking at these locations.

A frequently used special provision and revised details were prepared, and were subsequently reviewed and endorsed by MCPA. The contractor will be required to develop specific joint layout plans for each intersection and submit them for acceptance by the engineer.

The concept was presented for approval. There was considerable discussion about the method of payment for this work. Concern was raised about including this item in the cost for the concrete pavement.

ACTION: The concept for the special provision and special details is approved.

Further details for implementation and transition will be worked out. It was agreed that a protocol will be developed for estimating and paying for intersection joints separately.

3. **Pavement Selections – D. Weber**

A. **M-52 Rehabilitation: CS 46071, JN 43521**

The rehabilitation alternates considered were an HMA overlay, over rubblized concrete (Alternate 1 – Equivalent Uniform Annual Cost [EUAC] \$40,248/directional mile) and an unbonded concrete overlay (Alternate 2 – EUAC \$55,586/directional mile).

A life cycle cost analysis was performed and Alternate 1 was approved based on having the lowest EUAC. The HMA overlay design and cost analysis are as follows:

1.5" (38.1mm).....	HMA 5E3, Top Course (Mainline)
2.0" (50.4mm).....	HMA 4E3, Leveling Course (Mainline)
3.0" (76.2mm).....	HMA 3E3, Base Course (Mainline)
6.5" (165.1mm).....	HMA 4C, 3C, and 2C (Shoulders)
9" (228.6mm).....	Rubblized Concrete
15" (381mm).....	Existing Base and Subbase (Mainline & Shoulders)
	Underdrain System
30.5" (774.7mm).....	Total Thickness
Present Value Initial Construction Costs	\$431,181/mile
Present Value Initial User Costs	\$13,988/mile
Present Value Maintenance Costs.....	\$106,691/mile
Equivalent Uniform Annual Cost	\$40,248/mile

B. **M-52 Rehabilitation: CS 46071, JN 57104**

The rehabilitation alternates considered were an HMA overlay, over rubblized concrete (Alternate 1 – EUAC \$39,653/directional mile) and an unbonded concrete overlay (Alternate 2 – EUAC \$58,586/directional mile).

A life cycle cost analysis was performed and Alternate 1 was approved based on having the lowest EUAC. The HMA overlay design and cost analysis are as follows:

1.5" (38.1mm).....	HMA 5E3, Top Course (Mainline)
2.0" (50.4mm).....	HMA 4E3, Leveling Course (Mainline)
3.0" (76.2mm).....	HMA 3E3, Base Course (Mainline)
6.5" (165.1mm).....	HMA 4C, 3C, and 2C (Shoulders)
9" (228.6mm).....	Rubblized Concrete Underdrain System
14.0" (355.6mm).....	Existing Aggregate Base and Subbase (Mainline & Shoulders)
29.5" (165.1mm).....	Total Thickness
Present Value Initial Construction Costs	\$430,705/mile
Present Value Initial User Costs	\$5,858/mile
Present Value Maintenance Costs.....	\$107,138/mile
Equivalent Uniform Annual Cost	\$39,653/mile

C. I-75 Rehabilitation: CS 16092, JN 53288

The rehabilitation alternates considered were an HMA overlay, over rubblized concrete (Alternate 1 – EUAC \$28,218/directional mile) and an unbonded concrete overlay (Alternate 2 – EUAC \$38,777/directional mile).

A life cycle cost analysis was performed and Alternate 1 was approved based on having the lowest EUAC. The HMA overlay design and cost analysis are as follows:

1.5" (38.1mm).....	HMA 5E10, Top Course (Mainline & Inside Shoulder)
2.0" (50.4mm).....	HMA 4E10, Leveling Course (Mainline & Inside Shoulder)
3.0" (76.2mm).....	HMA 3E10, Base Course (Mainline & Inside Shoulder)
6.5" (165.1mm).....	HMA 4C, 3C, and 2C (Outside Shoulder)
9" (228.6mm).....	Rubblized Concrete
15" (381mm).....	Existing Aggregate Base & Sand Subbase (Mainline & Shoulders)
	Underdrain System
30.5" (762mm).....	Total Thickness
Present Value Initial Construction Costs	\$279,157/directional mile
Present Value Initial User Costs	\$1,805/directional mile
Present Value Maintenance Costs.....	\$105,951/directional mile
Equivalent Uniform Annual Cost	\$28,218/directional mile

4. Bridge Skew Policy – E. Burns and S. Beck

Engineers must consider skew when designing bridges. Limited guidance is given by AASHTO and designers are left to account for the additional stresses caused by skewed cross sections. The Bridge Committee suggests adopting a formal policy for bridge skews and adding it to the *Bridge Design Manual*.

The formal policy was presented for review. Accordingly, standard design using approximate methods will apply for skews up to 30 degrees. For skews greater than 45 degrees, special permission from Bridge Design must be secured; however, preference is to avoid heavily skewed bridges. The middle area for skews between 30 and 45 degrees will require rigorous design using refined methods, such as finite element analysis.

ACTION: The Bridge Skew Policy and concept are approved. Changes will be incorporated into the *Bridge Design Manual*.

5. **Notice to Bidders for Society for Protective Coatings (SSPC) Certification for Bridge Painting – E. Burns**

The SSPC administers a certification program for bridge painting contractors. Several states have adopted these requirements and it is recommended that Michigan do the same. A majority of our painting contractors are already SSPC QP1 and QP2 certified.

ACTION: The recommendation to require bridge painting contractors to be certified is approved.

NOTE: The following notification will be sent to the appropriate bidders:

Effective October 1, 2006, any contractor who is interested in bidding on bridge painting projects with bridge paint warranties must provide to the department's Contract Services Division proof of current certifications from the Society of Protective Coatings (SSPC) for "QP 1, Field Application to Complex Industrial and Marine Structures" and "QP 2, Field Removal of Hazardous Coatings".

Effective October 1, 2007, any contractor who is interested in bidding on any bridge painting projects must provide to the department's Contract Services Division proof of current certifications from the SSPC for "QP 1, Field Application to Complex Industrial and Marine Structures" and "QP 2, Field Removal of Hazardous Coatings".

(Signed Copy on File at C&T)

Jon W. Reincke, Secretary
Engineering Operations Committee

JWR:kar

cc:	G. J. Jeff	S. Mortel	J. Steele (FHWA)
	K. Steudle	D. Jackson	A. C. Milo (MRBA)
	L. Hank	W. Tansil	G. Bukoski (MRBA)
	EOC Members	D. Wresinski	R. J. Risser, Jr. (MCPA)
	Region Engineers	C. Libiran	D. Hollingsworth (MCA)
	TSC Managers	R. J. Lippert, Jr.	J. Becsey (MAPA)
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	T. Kratofil	T. Phillips	M. Nystrom (AUC)
	M. DeLong	K. Peters	J. Murner (MRPA)
	B. Kohrman	J. Ingle	R. Brenke (ACEC)
	J. Shinn	C&T Staff	